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ABSTRACT

An overview of recent trends in research on educational innovation contributes to a framework for further analysis. Two basic assumptions made are that innovation depends on multiple factors and that innovation itself is a three-stage process involving initiation, implementation, and incorporation into an organizational structure. The most important of the stages is implementation. The distinction between educational reform, which happens at the system-wide level, and educational innovation, which occurs at much lower levels, dictates that research on the implementation of innovations must focus on the "micro" level, that of the school and the classroom. A summary of research on the determinants of implementation indicates that they comprise four sets of factors, including the nature of the innovation, the characteristics of the school, the attitudes and attributes of the teachers, and the particular strategies chosen for implementation. However, researchers on innovation should not ignore the role of larger sociopolitical influences, such as the lack of long-term continuity in governmental policies. (RW)

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Report no. 28

RECENT TRENDS IN THE RESEARCH ON INNOVATIONS IN EDUCATION

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Recent trends in the research on innovations in education *

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1. Introduction : purposes and structure of the paper

The study of history in general can be conceived as a systematic study of change. A historian is interested in political, sociological, ideological factors that shape the history, as far as they are responsible for historical changes. The study of the history of education in particular involves, among other problems, the study of the adoption, dissemination and implementation of educational ideas, of new structures for a nation-wide school system, of new curricula, etc...

Since the beginning of the 1960's we see that educationists, sociologists, specialists in organization development have conducted many studies in order to get insights into the process of reform and innovation in education. As Goodlad observed, during the 1960's innovation was the name of the education game (Goodlad et al., 1974, p. 14). During this period - and even today - an increasingly complex apparatus, both national and international, was set up to create and disseminate new approaches to schooling. According to Whiteside there was at that time a high level of consensus among educational opinion-makers on the need for change, there was also - and still continues to be - a wide variation in the scope of the change aimed at. The alternatives proposed ranged all the way from leaving the present school virtually intact as an institution but with much revision in curriculum and instruction to replacing completely the school with new arrangements for education with or without some form of compulsory education (Whiteside, 1978, p. 14-15).

Along with the increasing interest for change and innovation in educational settings, one can observe an increase in research projects and the publication of review articles of high quality (Giacquinta, 1973; Fullan & Pomfret, 1977; Fullan, M. Miles, M.B. & Taylor, G., 1980). These reviews, articles and some hundred of research papers provide a background for building up an analytical framework for the study of change and innovation in education. The main purpose

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of this paper is to develop an analytical framework in order to understand better, in a dynamic way, how changes take place in our schools (and also in the classrooms). In other words : firstly we will try to present some of the basic assumptions that have to be considered when one likes to analyse the process of change; secondly rather than developing another hypothetical model of change, we have the intention to present the basic dimensions and factors that we have to take into account in order to understand "innovations in education".

In working out a framework for the study of change and innovations in education, we will consider the two following assumptions about the process of educational change. The first one is that the extent of real change or the degree of implementation and incorporation of an innovation in any school's organization and the way and speed with which it occurs, depends upon multiple factors. The basic factors will be described and elaborated. The second assumption is that the process of change can be conceptualized as a three-stage process. According to Giacquinta, to change a school in a successful way, we have proceed upon three basic stages : initiations of the innovation, implementation and incorporation as a stable part of the organizational structure (Giacquinta, 1973, p. 179). In more recent publications, implementation has been considered as the core stage. Questions as : what is the nature of implementation; why study implementation and how can we measure the degree of implementation are very relevant ones (Fullan & Pomfret, 1977; Jane Roberts, 1978)

The paper is set up around these two assumptions. After a short analysis of some definitions and distinctions, we will give a description of the three stages and focus our attention on the determinants of the implementation process. By proceding in that way we hope to give an overview of the most recent trends in the research on innovations in education, and we doe hope that members of a "Society for the study of the history of education" will be able to formulate some consequences for their own specific research work.

2. Analysis of some definitions and distinctions

Until now, we have used terms as "change", "educational change", "educational innovations" interchangeably. At this moment a lot of terms and definitions are used. Starting to make a distinction between "reform" and "innovation", we will afterwards try to concentrate on two important aspects of educational reforms and innovations and prove the importance of our second assumption (see point 1) in which we suggested that the implementation - stage is the central one.

In a paper for policy-people, Sack quotes Kluchnikov who suggests that educational reform is "an internal part of the social transformation and comprises major changes in educational policies, involving major changes in a nation's educational objectives, normatives and structures. An educational reform is a system-wide phenomenon which may have repercussions beyond the educational system itself. In other words, the idea of educational reform tends to be linked to broader ideas of societal change or, at least, of better systems maintenance at a societal level (Sack, 1979, p. 2). Secondly, an educational reform is generally initiated by the decision-making center of the educational system. Thirdly, in the evaluation of an educational reform we find that environmental factors (social, economical and political) are consistently presented as playing an essential role in the evaluative understanding of a reform (Sack, 1979, p. 3). And fourthly, the description of the educational reform is generally restricted to some general aims and objectives and can be found in the official documents of the Ministries of Education. These documents contain no comments or suggestions on the processes and methods by which the objectives are to be realized.

Applying these four characteristics, we can say that the comprehensive school in Sweden, the so-called "middle-school" in the Netherlands and the Renewed Secondary School in Belgium can be conceived as reforms. In these three cases we find as a general aim, the democratisation of the school system in order to reduce social, regional and sexual inequalities in the social system (Sack, 1979, p.3(
Looking at these and other general aims, we can discern a conception of the relationship between education and society.
On the other hand, "innovation" is a term very often used in publications. Comparing innovation with reform, we can in fact say that a reform consists of a bundle of innovations. In order to implement the Renewed Secondary Schools in Belgium, the schools and the teachers have to implement a system of grouping pupils which differs a lot from the present self-contained classrooms; teachers have to accept and to use another evaluation system; new curricula and materials have to be introduced; new forms of cooperation between teachers are necessary; for a number of activities the school and the teachers are dependent on an external support structure, etc... Looking at this examples we can say that compared with a reform, innovations (in an educational setting) are more limited in scope; we can conceive innovations as attempts to improve or change selected aspects of the educational system, of the functioning of a school and of the teaching activities of teachers. Secondly, some of the so-called innovations are initiated by a central policy body; others are created by schools or a group of teachers. One can even observe that the same innovation is implemented in very different ways.

Thirdly, according to Sack, without ignoring external or environmental factors, the available studies on educational innovations tend to be more concerned with factors within the educational system (or within the school) which are technically relative to the innovation in question and the processes of its application (Sack, 1979, p. 4). Fourthly - and this is important - those who study the life of educational innovations are interested in an understanding of the processes by which an innovation is initiated, implemented and incorporated. Planners and policy-makers on the macro-level appear to concentrate on the general aims and the relationship of these aims with the future development of the society. Researchers and change agents interested in innovations appear to concentrate on the process-side of a change in an educational setting and on the factors which determine the quality of the process.

Although the distinction between "reform" and "innovation" has a limited value, we can accept the fact that a reform is related to a new idea, a new development of a whole school system in relation with the economic, social and political development of a nation. In other words a reform appears to be situated on the macro-level. Studying the course of an innovation means elaborating the relationship between the characteristics of an innovation and the reactions of an individual teacher and of the parents; it also means an investigation of the consequences of an innovations for the grouping of teachers and the introduction of new departments. It means the study of the consequences of an innovation for the daily activities of a teacher in his or her classroom. The study of the initiation and the implementation of an innovation is situated on the meso- and micro-level.

The distinction between "reform" and "innovation" leads to a theme which is basically important for the understanding of a trend in the research on innovations in education. In most countries we can observe that the general policy plans on change and reform of the educational system are generally silent on the processes and methods by which the objectives are to be realised by the schools and by the (individual) teacher. In other words, the policy makers are in the first place interested in the formulation of the aims and in the explanation of the value of the proposed reform. They are far more less interested in the process of a real implementation. But again and again studies of educational innovations have observed that there is a real gap between the ideas of the 'new educational revolution' and the blue-print of a reform on the one hand and the daily reality in the school and in the classrooms. In his study of the elementary school in the U.S.A., Goodlad concluded that few of the most widely recommended educational ideas and practices have found their way into the classroom (Goodlad et al., 1970). Also in relation to the USA, Lortie observes that it is paradoxical

that although in recent years millions have been spent on educational development, the quality and quantity of reporting on school activities remains seriously inadequate (Lortie, 1975, p. 214). In a report on the implementation of ESEA Title I - which is a part of the so-called Rand Studies - Milbrey Wallin McLaughlin, makes the observation that the passage of ESEA Title I embodied not only the high hopes of reformers, but also an implicit challenge to the nation's school system. Title I implied that current practices are inadequate and that the schools were given the assignment of self-renewal. However, almost a decade after the passage of Title I, the general verdict is that educators have not successfully met that challenge - that Title I has "failed" as an instrument of national policy. Without exception, the national evaluations of Title I, have been unable to identify how participation in Title I programs or the expenditure of Title I funds have affected target children (Milbrey Wallin McLaughlin, 1976, p. 397-398).

In 1979-'80 we had the opportunity to set up on evaluation study on some aspects of the Renewed Primary School in Belgium. The innovation of the Primary School started in 1973-'74 in a limited number of schools; in the following years others schools joined the experimental group. After seven years we could observe that in many cases nothing had changed; in other schools innovations such as "individualized reading instruction" and "the integration of the preschool education in the elementary school" had been implemented in various ways; which leads us to the conclusion that in reality we don't find an innovation but rather configurations of the same innovation. In his publications on some reforms in Great Britain, and after an analysis of the gap between rhetoric and reality of reforms and innovations, Whiteside concludes : "... if the devide between rhetoric and reality is to bridged, if change it not to be blunted on the school and classroom door, developments in our description and understanding of what goes on in schools must be made" (Whiteside, 1978, p. 43).

In other words the richest terrain for investigation is the one where one finds the most action, that is the local school and the local classroom. In order to get a real understanding of the process of innovation, we have to focus our attention at the points of initiation and implementation (or in some cases application) of the innovation. Here, again, we repeat the idea that in recent publications the implementation stage is considered as the central one.

We assume that students of the history of education are interested both in the study of reforms and the study of innovations. E.g. the analysis of the relationship between the development of technical and professional schools and the industrial revolutions is very interesting for a historian. Furthermore we assume that most of the studies in the field of the history of education are concentrated

on the relationship between the development of schools and extra-school organisations and the socio-economic development. We can also imagine that historians investigate innovations as defined in this paper. An analysis of manuals used during two or three decades can lead to an understanding of the implementation of new ideas on mathematics or natural sciences. Using the right sources one can reconstruct the spread of an innovation. In my opinion this is a real challenge for the history of education : how to analyze historical material in order to get an understanding of the implementation - which is different from the adoption and the dissemination of an innovation. How can we develop a reference scheme that can be used for an analysis of written material ? What are the basic dimensions of that reference scheme ?

This problem for the history of education has been pointed out by Clifford as follows : "this tendency of educational history to omit school culture is particularly misleading when the telling deals with the more 'progressive' parts of the story i.e. with change. Hence the chronicler specifies the charges against the formely tyrannical schools, illustrate the pedagogical view of the old fashioned teacher, points an outline of the 'bad old schooldays'. The detailing of reformed practices, however, is sketchy and change is reducible mostly to statements of ideals (Clifford, 1973, p. 4).

3. Stages of the change-process

A first step in the construction of a reference scheme concerns an analysis of the change-progress. In most publications, a general model in which the three stages initiation-implementation-incorporation are described, is accepted.

According to Giacquinta the three stages can be defined as follows. Initiation is the process that, when succesful, leads to the introduction of (organizational) innovations. Implementation is the process that, when successful, results in the alteration of organizational members behavior and attitudes so that they conform to the expectations of the innovation. Incorporation is the process leading to the stabilization or routinization of the new behavior so that the innovation becomes a regular part of the school's organization (Giacquinta, 1973, p. 197). Besides these definitions, it's important to pay attention to the relationship between the three stages as conceived by Giacquinta. "Implementation of change, of course, cannot take place in the abscence of initiation. Moreover, incorporation cannot occur unless successful initiation and implementation occurs first, but the reverse does not appear to be true. Successful initiation does not necessarily lead to successful implementation, and successful initiation and implementation does not necessarily lead to successfull incorporation" (Ibidem, p. 197-198).

Students in the history of education can collect data about the diffusion of an innovation and about the adoption of an innovation by analysing official documents, journals and manuals. These data are critical for the process of initiations, but they are only important for the first part of the three-stages process. Once adopted and initiated, implementation of innovations remains problematic and, therefore, must be distinguished as a second stage in the process. In several research reports about a decade ago, the number of schools or teachers, who declared they used the innovation was used as a criterium for the success of an innovation. I can imagine that in an historical study a researcher counts the schools that, according to official documents, have declared that they have adopted an innovation. It's quite clear, that that kind of criterium cannot be used if we would like to make a statement about the (degree of) implementation. The problem with this kind of research is that it is based on the faulty assumption that reported use of an innovation is the same as actual use.

After this short description of the change-process, we would like to analyse the second stage, called implementation.

4. Primary focus on the implementation of an innovation.

We first of all will try to grasp the meaning of implementation and explore the question why it is important to study implementation. Secondly we will pay attention to the determinants of the implementation process.

4.1. Meaning and importance of implementation.

In a review on instruction and curriculum implementation Fullan & Pomfret define implementation as the actual use of an innovation or what an innovation consists of in practice (Fullan & Pomfret, 1977, p. 336). In a more recent publication Fullan conceives implementation as "the putting into practice of an idea, program or set of activities which is new to the individual or organization using it" (Fullan, 1980, p. 2).

Reading these two definitions, one could get the impression that implementation is a fairly simple notion; this is a faulty assumption. Implementation as a process is a very complex one. In order to clarify that process the following distinctions should be made.

First of all, implementation is not the decision to use a new program; the latter is usely referred to as adoption (M. Fullan, 1980, p. 2). E.g. : on september 1, 1980, about 150 elementary schools in Belgium will join the movement towards a "Renewed Primary School"; the schoolleader and the teachers have made

up a decision and these schools have been accepted by a kind of selection board. The decision doesn't guarantee an implementation of the basic dimensions of the "Renewed Primary School".

Secondly, it's interesting to analyse two faulty assumptions on the implementation process. The phenomenon of implementation and the related problems can be understood irrespective of the person who decides. One could make the assumption that all implementation problems will disappear if the schoolleader and the teacher are accepted as the main decision-makers. In other words, if the innovation is voluntarily sought, there will be no problems, implementation problems do only arise in the cases of externally imposed innovation. The consequences for implementation and the quality of the implementation can be different in these two cases, but in either case teachers and schoolleaders will be confronted with problems which are characteristic for the implementation stage. One could make a second assumption : we can avoid implementation problems if the innovation is developed in advance (for instance by a R & D Center) and then disseminated to several schools. But looking at the nature of educational innovations, Leithwood & Montgomery make the observation that, no matter how concrete and explicit the policy-maker or curriculum developer attempts to be, every curriculum innovation is in some sense incomplete from the point of view of those who are to put it into practice. In most guidelines produced by a policy board there is a lack of attention to explicit teacher behavior, and besides that it frequently occurs that the developer's purposes for introducing the innovation diverge from the intention of the user. That means that a teacher, once he has made the decision to adopt an innovation, is confronted with additional demands for further development of the innovation adapted to his working situation (Leithwood & Montgommery, s.d. p. 5-6).

Thirdly, any change attempt is directed towards the realization of an innovation or towards the "putting into practice". In that sense, an analysis of the implementation is concerned with changes in some components of the user system. Hence the fundamental question : "What components should a researcher include in constructing a "snapshot" of the user system at a specific point in time ?" (Fullan, 1977, p. 361). In other words, the description of the implementation of an innovation requires a multidimensional approach. Fullan suggests that the implementation consists of change in objectives, subject matter and/or materials, philosophical conception of education and role change (Fullan, 1980, p. 3; see also Fullan & Pomfret, 1977, p. 361-362). During 1979-'80 we have made a first analysis of the implementation of an individualized reading curriculum in grade one and two in the Renewed Primary School (R. Vandenberghe et al., 1980), using a

procedure suggested by Hall & Loucks (1978). We have observed that most of the teachers used a lot of materials (manuals, self-made tasks for the pupils, etc...) in order to materialize the idea of individualisation. Most of the teachers are very sensitive to the problems of individual differences between the pupils and do accept that "individualization" is a very important objective of the "Renewed Primary School". Nevertheless, they have problems with some aspects of the general philosophy of individualization. For instance, it is quite clear that they don't accept the fact of adapted norms for evaluating the progress of their pupils. Individualization to them doesn't mean evaluating pupils by using different norms. And, we could also observe the fact, that they have some difficulties with the fact that another way of grouping pupils (individualization versus self-contained classrooms) does also implies another way of grouping teachers. In some cases they don't accept the introduction in their class of a so-called "remedial teacher" who is responsible for "their" pupils - during a limited time of a schoolday - with some reading difficulties (see changes in role or role conception). We found the same observation in a publication of Fullan, where he states : " ... a examination of the curriculum change efforts of the last ten years will show that a great deal of emphasis has been placed on materials production and definition of objectives with little concern for the new conceptions of education and new teaching strategies which might be required. Stated another way, attempts at planned educational change have been preoccupied with the more tangible, easier to develop aspects of implementation to the neglect of the more difficult social and personal implications for change. Whether or not change is put into practice essentially depends on whether people change their conceptions, and behavior (Fullan, 1980, p. 3).

Until now, we have emphasized the meaning of implementation. Starting from this information, it becomes clear why it is important to study implementation directly. By doing it that way we get a better understanding of the differences between the planned use and the actual use of an innovation. For a long time the implementation stage has been a kind of "black box" between the new idea, the new curriculum, the new materials and the (intended) better learning outcomes achieved by the pupils. A study of the implementation stage means the opening of the black box in order to get a picture of what is going on in the daily practice of a school. In addition to this, it's only after the analysis of the actual use of an innovation that we can interpret the learning outcomes in relation with the innovation or with some aspects of the innovation. In absence of reliable measurements (or observations) of the implementation (or degree of implementation) of an innovation (or some selected dimensions) we run the risk of evaluating nonevents (Charters & Jones, 1973).

4.2. Determinants of implementation

The process of implementation is a very complex one. The factors or determinants that could influence that process are potentially enormous in number and of different nature. Ten years of detailed research on implementation has resulted in a number of supported finding about the main determinants of planned change (N. Fullan, 1980, p. 22).
We have ordered the determinants into five broad categories; within each category we will give some illustrations. We don't intend to give a full and elaborate overview of all determinants which have been identified (for a more systematic review of determinants, see : Giacquinta, 1973; Kricek, 1976; Fullan & Pomfret, 1977; M. Fullan, 1979; M. Fullan, 1980).

4.2.1. Characteristics of innovation

Other aspects equal, proposed innovations having certain characteristics may be more easily implemented and instituted than others.

According to Miles an innovation's cost may be important, since without good measures of output and the presence of vague possible rewards, educational organisations tend to stress costs and their reduction as the basis for justifying adoption of an innovation (Miles, 1964, p. 635).

Innovations associated with materials are more likely to be adopted by schools, since they can be altered to fit the demands of teaching situations and easily reproduced and distributed (Miles, 1964, p. 636).
In our opinion, this is a oversimplicification, since we know that a lot of technical media, as for instance programmed instruction, has been adopted but not implemented. The imcompatibility between the underlying principles of the developed materials and the usual role-definition by the teachers leads easily to non-implementation. Research on teachers' attitudes towards programmed instruction and other media has provided supporting evidence for the hypothesis that the introduction of automated devices into the classroom threatens the teacher. Tobias (1963) investigated teachers' attitude towards three groups of terms. Ons set of terms described traditional teaching aids, such as flashcards, workbooks and exercise books. The two other sets of terms both described materials connected with programmed instruction; one group of terms described these materials with labels stressing automation and mechanization (automated instruction, mechanized tutor and teaching machine), and the other set of terms omitted the implication of automation (programmed instruction, programmed text and tutor text).
The results indicated that the least favorable attitudes were expressed concerning the terms connoting automation, followed by the programming terms, with the

traditional terms receiving the most favourable response. Significant differences were found between terms, in essence synonyms, but only differing in the degree they connoted automation. In another study by Tobias (1966), three terms drawn from the field of audiovisual education were added to the terms used in the prior investigation. Three sets of terms, the audiovisual, automated, and programming group, each contained one term using the word 'tutor' as a suffix or prefix, i.e. TV-tutor, mechanized-tutor, tutor-text. It was reasoned that since these terms most explicitly connoted replacement of the teacher's function, teachers ought to have the most negative reaction to them if fear of automation was a variable in their attitudes. This prediction was clearly confirmed by the findings (see also Tobias, 1968, 1969, and Everson & Tobias, 1978). This example clearly indicates the importance of attributes of an innovation, but it is also an illustration of the general rule that the attributes of an innovation are important as far as they are perceived by the teachers as possitive or negative.

Another characteristic of an innovation, which is in our opinion very important, concerns the degree of role change (or the role changes) required by an innovation. An analysis of innovations identifies more role changes than is usually explicit or manageable (Fullan, 1979, p. 9-10). In an analysis of the introduction of remedial teachers in the elementary schools in Belgium, we have observed that in most cases the requirements of cooperation in the diagnostic, remedial and evaluation stage are very difficult to implement. The assumption that the adoption of a "remedial teacher" as an (innovative) opportunity for the school, will lead to cooperative behavior between the teachers, is an underestimation of the complex process of role change (R. Vandenberghe, 1980; Carbonnez, 1980). This factor - the degree of role change - highlights the importance and the need to spend time on sorting out the role changes implicit to an innovation during the initiation and the implementation stage.

At least, we like to stress the importance of an attribute of an innovation which has been labeled complexity : change efforts which are more comprehensive, substantial and complex are more difficult to implement. (Fullan & Pomfret, 1977, p. 370). An innovation which implies changes in materials, in grouping of pupils, in relationship with students and in relationship with collegues are far more difficult to implement than innovations which are less complex.

4.2.2. Characteristics of the school

Studies and papers on this topic deal with the extent to which both general qualities and qualities especially related to schools as complex organizations influence implementation. Here too, we will limit the descriptions to some illustrative examples.

Sieber provides a succinct analysis of special features of schools and their implications for change (Sieber, 1968). For instance, vulnerability refers to the influence of environment on the organization, irrespective of its goals and resources. Sieber notes that the vulnerability of schools may lead to divergent effects, depending on the nature of their environment. Innovations supported by the community will most probably be accepted, although they may be non-disruptive or "watered-down" versions. Those opposed by the community may be resisted. Moreover, schools, in self-defense because they are vulnerable and have a lack of consensus on goals and procedures, often require excessive internal conformity. Thus, departures from standard procedures may be discouraged, thereby seriously reducing the probability of educational experimentation.

According to Fullan the history of innovative attempts in the past will influence the willingness to start with another innovation (Fullan, 1979, p. 7). The more the principal and the teachers have had negative experiences with previous implementation attempts, the more cynical and skeptical they will be with the next one that comes along, regardless of the quality of the new program. A lack of understanding of teachers past experiences with innovations is typical for a centralized innovation policy. For instance in Belgium; during a period of ten years, at least four different systems of student evaluation in the secondary schools, have been proposed. In these context the "wait and see"-reaction is a typical one.

The way the principal acts as a schoolleader is an obvious determinant factor. At the level of the actual use of an innovation he may provide support for in-service training and materials. Principals preoccupied with administration and/or unable to manage the implementation process within the school, do not have positive impact on implementation (Fullan, 1980, p. 24). This is one of the main conclusions of the Rand-studies. Berman and McLaughlin have observed that the importance of the principal can hardly be overstated to both the short- and long-run outcomes of innovative projects (Berman & Laughlin, 1978, p. 30-31). The more supportive the principal was perceived to be, the higher was the percentage of project goals achieved, the greater the improvement in student performance, and the more extensive the continuation of project methods and materials.

The research is also consistent in finding that the quality of work relationship among teachers and other components of the organizational climate are central to implementation succes (Fullan, 1980, p. 29). According to the Rand-researchers teachers who work will together, forme a <u>critical mass</u> that could overcome

both, task and emotional needs. "For example, by openly sharing their implementation problems and individual solutions, teachers learned from each other and could support each other. Of course, good project-relationships did not develop in a vacuum; they occured in schools that already had high morale (i.e. in schools that teachers felt were good places to work in and had good esprit de corps) and in projects in which teachers participated in decisions about adaptations. The sense of ownership that evolved in these cases is a basic reason why good working relationships were strongly correlated with teachers' continued use of the project". (Berman & McLaughlin, 1978, p. 30).

4.2.3. Influence of personal characteristics of the teachers

In his review, Giacquinta pays attention to three central personal attributes related to change : understanding of innovations; ability to exhibit the attitudes, values and behavior required, and willingness to make the necessary efforts (Giacquinta, 1973, p. 189).

In the Rand-studies three teacher attributes - years of teaching, sense of efficacy and verbal ability - have been found to have a significant effect on project outcomes (Berman & McLaughlin, 1978, p. 32). The numbers of years of teaching had negative effects : the longer a teacher had taught, the less likely was the project to achieve its goals or to improve student performance. Teachers with many years on the job were less likely to change their own practices or to continue using project methods after the end of federal funding. The teacher's sense of efficacy - a belief that the teacher can help even the most difficult or unmotivated students - showed strong positive effects on all the outcomes. Teachers' attitude about their own professional competence, may be a major determinant of what happens to innovation in classrooms. In contrast, the teachers' verbal ability had no relationship to the project implementation, outcome or continuation, with the exception of its positive correlation with improved student achievement.

Besides studies in which some personal attributes in relationship with change have been described, there are other studies in which the problem of the influence of teachers' characteristics has been explored in another way.

In their so-called ecological analysis, Ponder & Doyle focus in particular on the decision-making processes which appear to underlie teacher reaction to change proposals (Ponder & Doyle, 1977). They claim that the "practicality ethic" is a key factor for understanding reactions of teachers. These practicality ethic has been summarized by Ponder & Doyle as follows : "In the normal course of school events teachers receive a variety of messages intended to modify and improve their performance. If one listens carefully to the way

teachers talk about these messages, it soon becomes clear that the concept "practical" is used frequently and consistently to label statements about classroom practices. In the context of the present analysis, this labeling represents an evaluative process which is a central ingredient in the initial decision teachers make regarding the implementation of a proposed change in classroom procedures. Messages which are seen as practical will be incorporated, at least tentatively, into teacher plan. The study of the practicality ethic, then, is the study of the perceived attributes of messages and the way in which these perceptions determine the extent to which teachers will attempt to modify classroom practices" (Ponder & Doyle, 1977, p. 3). Taking in consideration this conceptualization of 'practicality' one of the main questions is what attributes of a change proposal tend to elicit the perception of practicality from teachers ? In an initial attempt Ponder and Doyle have posed that teachers appear to use three general criteria : instrumentality, congruence and cost. Instrumentality means that a change proposal must describe an innovation procedure in terms that picture classroom contingenies.
In other words : how specific and clear a proposal communicates the procedural content ? How well are the principles, objectives and outcomes translated into appropriate procedures by the curriculum ? The congruence dimension of the ethic of practically appears to be comprised of a cluster of at least three elements, all focusing on the perceived "match" between the change proposal and prevailing conditions and all containing a highly personal emphasis. These three elements can be translated into the following three questions. First, how well does the innovation fit in with the way the teacher normally conducts class ? Secondly, how closely does it matches the nature of the setting under which the innovation was tried previously, with the teacher's own school situation ? And how credible are the experiential credentials of the person making the recommendations ? Thirdly, how compatible is the innovation with the teacher's self-image and preferred way of relating to pupils ? Cost is conceptualized as a ratio between the amount of investment required to implement an innovation and the return that may be realized. Here too, we can translate the cost dimension into questions such as : how much of a reward will the teacher receive for using the innovation, whether it be in terms of money or recognition and student enthusiasm and potential learning ? How easily can the innovation be broken down into smaller units for short-term trials (see complexity under 4.2.1.) ? How much time and effort are required to implement the curriculum ?

This analysis of the teacher's decision process is interesting because it's a combination of two categories of determinants, since it's an analysis of the influence of attributes of an innovation, as far as those attributes are perceived and evaluated by teachers. In other words : the evaluation of the value of an innovation is influenced by the attitude of the teacher, his general value-orientation, his conception of the role of a (good) teacher, etc. (see also Doyle & Ponder, 1977; Vandenberghe, 1978). (For an analogous approach, see : Lieberman & Miller, 1978).

We also found a very promising approach on personal attributes in the so-called Concerns-Based-Adoption-Model (CBAM) which is based upon extensive experience and research in implementing educational innovations in school and college settings (Hall, 1978; Hall, George & Rutherford, 1977). Several assumptions about the implementation process are underlying the model. In some of these assumptions we clearly find indications for the fact that the individual teacher, in relation to the change process, has to be the primary focus of analysis and intervention. From the CBAM perspective the emphasis is placed on working with the individual teachers in terms of their roles and their functioning with the innovation. Furthermore, change is a highly personal experience. In other words : since change is brought about by individuals, their personal feelings and perceptions, satisfactions, frustrations, concerns and motivations all play a part in determining success or failure of a change initiative. But that individual change process is not an undifferentiated continuum. There are identifiable stages that individuals move through in their perceptions and feelings about the innovation.

The researchers of the R & D Center for Teacher Education have identified seven stages of concerns (awareness, informational,personal, management, consequence, collaboration, refocusing). During the implementation of an innovation it appears that the stage 'awareness' 'informational' and 'personal' will initially be most intense. In other words, at the beginning of an innovation project the teacher is concerned with general information about the innovation and feels uncertain about the demands of the innovation, his or her inadequacy to meet those demands and his or her role with the innovation. With time and after a further development of the innovation in the school, management concerns - issues related to efficiency, organizing, managing, scheduling and time demands -, consequence concerns - relevance of the innovation for the students, including student outcomes - and collaboration concerns - coordination and cooperation with other teachers - become most intense. At least we see that the possibility of major changes of the innovation or replacement with a more powerful alternative are explored (refocusing).

Information about the concerns of teachers engaged in a project, provide a basis for decisions for the development of strategies and activities to be used by change agents. The quality of the concerns of teachers, as an individual characteristic, is a key factor in the process of implementation.

4.2.4. Characteristics of the strategies

The way in which innovations are introduced affects the speed and degree of their installation in schools. Here too, we would like to illustrate the broad field of strategies by giving some illustrations.

According to Fullan the usual way of introducing the curriculum has been to provide what is called a pre-implementation workshop, where teachers are given a general introduction and in the best case some training of skills (Fullan, 1979, p. 10). But, more important is to work out a follow-up inservice and periodic workshops with teachers as they experience the implementation problems. In other words, continuous, sustained in-service education programs are necessary to support real implementation.

In the Rand-studies, we found an interesting synthesis of the elements of a strategy which seems to be very effective. An effective strategy promotes mutual adaptation, the process by which the project is adapted to the reality of its institutional setting; teachers and school officials adapt their practices in response to the project. The Rand researchers have elaborated the following elements of an overall implementation strategy, that, when well executed, have a major effect on project outcomes and continuation (Berman & McLaughlin, 1978, p. 29).

- Concrete, teacher-specific, and on-going training is necessary. In the projects analysed by the Rand researchers, teachers required concrete, "hands on" training in translating often very general and fuzzy project guidelines into classroom practice, and adapting project concepts to the reality of their particular situation (see the ethic of practicality).
- Local resource personnel promoted mutual adaptation by offering relevant, practical advice on an "on-call" basis. Projects, providing effective classroom assistance were more likely to be continued by teachers.
- Visits to projects in other schools or districts appear to aid implementation. Peers were generally found the most effective counselors when it came to advising 'implementors-to-be' about problems they could expect, suggesting remedies, and encouraging new project staff that "they can do it too".

- Regular meetings of the project staff that focused on practical problems, often provided a forum for the feedback necessary for adaptation, an opportunity to share successes, problems and suggestions, and a vehicle for building up the staff morale and cohesiveness, important to effective implementation. The Rand researchers also observed that teacher participation in decisions concerning project operations and modifications was strongly correlated with effective implementation and continuation.
- Furthermore, they observed that the process of local material development promoted the clarity and commitment necessary to effective implementation and long-term continuation.
- At last, the active participation in the on-going training of the principal was very important. It signalled the staff that their efforts were supported and valued.

These elements of an effective implementation strategy can be used as criteria for the evaluation of strategies that have been used in the past and for projects that are in the stage of implementation (for more information about strategies, see : Emrick & Peterson, 1978; Runkel, Schmuck, Arends & Francisco, 1978).

4.2.5. Macro-sociopolitical factors

The political content and the nature of policy-making can seriously affect the implementation of an innovation and also affect the operation of the other categories of determinants.

Since 1972-'73, the first year of the project Renewed Primary School, four different Ministers of Education have been responsible for the implementation of the principles and the general objectives. As a result of a lack of a long-term policy, each new Minister tried to emphazise some specific aspects for the future of the Primary School. Several times during this seven years period we have observed a degree of frustration among the change agents, concerned with the implementation of the innovation; among teachers and principals we also observed a lot of concern regarding the future of the Renewed Primary school, and in many cases these questions and the difficulties, created by the lack of a long-term policy, have been used as an excuse for non-implementation.

In most countries government agencies were preoccupied with policy and program adoption, consequently they have been less effective at facilitating implementation. In other words once a political decision is taken, efforts

are mobilized to obtain as many adoptions as planned for, in as short a time as possible (Fullan & Pomfret, 1977, p. 387). Out of an adoption perspective, the introduction of an additional remedial teacher in the Belgian Primary School can be conceived as a real succes. Nevertheless, as a result of the emphasis on obtaining an adoption and a dissemination of these "remedial class" few resources were used and few opportunities have been created for a planning of the implementation. That means that in several cases some of the most important aspects of these remedial classes have been wrongly implemented or non-implemented (Van der Perre, 1979; see also Carbonnez, 1980). In other words : focusing on adoption of an innovation includes the danger of a "verbal" or purely "administrative" adoption without real changes in the classrooms and in the school.

In addition to the lack of a long-term policy and an adoption perspective toward innovation, there also may be problems with the role of evaluation. As Fullan and Pomfret point out, the political context may inhibit the process of identifying the problems of implementation. "Although there is little direct evidence in the literature, it is unlikely that teachers and other users will feel free to discuss problems of imple entation if sponsors and/ or their own immediate superiors are strong advocates of the innovation, if the emphasis is on rapid payoff and measurement of outcomes, and if there are minimal support systems to aid implementation. Put another way, it is politically naive to expect open discussions of problems of implementation in most large scale programs (Fullan & Pomfret, 1977, p. 389).

We had the intention to give a brief overview of the determinants of the implementation process. We have ordered these determinants in broader categories. It's quiet clear that there is some overlap between them. But, we are sure that one can observe the interactions. We now like to end with an important question : what kind of resources does an historian need and how does he to analyse these resources in order to get an insight in the nature of the determinants ? It's obvious that this is a very difficult questions perhaps an international confrontation of historians with an interest in the process of educational change and innovation could solve this and other questions.

5. Literature

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